Philad^a 22nd Dec. 1854

Dear Sir

I rec^d your favor of the 18th calling for more specific estimates of the cost of erecting the walls and stack for the experimental boiler and of ~~the~~ setting the same. I enclose herewith an estimate made by J P Morris & Co. which I trust will prove satisfactory, taken in connection with the following remarks.

In my letter of the 13th Inst. I stated that I did not now call for the iron furnace to prepare the alloys, and that I might not need it at all. This item of $90 for the iron work of such furnace is therefore to be stricken out of the $240. leaving $150. asked for. Of this last sum $105. are simply for the walls and stack, and cost of setting the boiler.

The remaining $45. (called in the enclosed, contingencies) is to cover the cost of mechanical arrangements on the boiler for the purpose of testing the fusible alloys. I wish to set in the boiler one or two of Evans' guards which I have on hand. But further, agreeably to your wishes expressed in conversation, I intended to contrive some other plans for using the alloys, if possible, without being necessitated to employ Evans' guards. In order to this I shall have to procure the apparatus, to test it, and then probably to modify it several successive times. It was to avoid troubling the department with such minute details, that I wished mess^s J P Morris & Co. to leave the margin of $45., so that they might construct for me the requisite apparatus at such times as I might require it. Since mechanical arrangements do not fall within my province as a chemist, except incidentally, I would much rather

confine myself to the invention and manufacture of the alloys, than invent methods for employing them, because I am more likely to be successful with the former.

In relation to the supply of water, I may state that I introduced it into the upper part of the building some years since, and that it requires only a connection from the lower part of the pipe into the principal story, where the boiler is to be situated, and a waste pipe from the boiler to the street. The whole cost will not exceed $30 to $35.

With regard to the building, and fixtures put up by the Govt. I will make any suitable arrangement satisfactory to the department. After my appointment in the U.S. Mint, I left a large laboratory and took the upper part of the present building, giving the business in charge to assistants to carry it on for themselves, but relieving me of the expense. This arrangement has continued to the present time, when the dept gave me authority to procure a building suitable for the experiments on and manufacture of the fusible alloys. I was for some time unsuccessful in finding one. I determined to make an offer for the whole building in which my laboratory was but could not obtain it except on a lease of 5 years at a cost of $500. pr. an. This lease I have made and bear personally the responsibility of it. Having paid $200. for the upper part and having given up a portion of this for the experiments, I thought that a fair rent for the balance of the building would be $400.

Having stated the facts somewhat in details I leave it for the department to propose such arrangements as shall secure the Govt. in the use of the fixtures they may put into the building. Exclusive of the boiler, however, all the fixtures will not exceed $200. or $250., from which they can procure 5 years of service, and of course they will be of little value after that time.

I trust that the views and explanations presented above may prove satisfactory to you, and that I may soon have the boiler set, as I am anxious to commence manufacturing alloys for use.

I shall send my results as thus far ascertained by small experiments in the course of a few days.

I have the honor to be,
Dear Sir Yr. Obt. Svt.
Jas. C Booth

Hon James Guthrie
Sect of the Treasury (City)
Washington
D.C.

1854
Dec 22nd
J.C.B. to Lee. Treas.